

REMARKS

The present Response is submitted in reply to the Official Action of May 13, 2005.

The Examiner objects to the Abstract of the Disclosure with regard to both the length and the language of the Abstract. In response, the Applicant herewith submits a new Abstract of the Disclosure that addresses the objections raised by the Examiner and it is the Applicant's belief that the presently submitted Abstract meets and overcome the objections raised by the Examiner. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all of the objections to the Abstract of the Disclosure. If any further amendment to the Abstract is believed necessary, the Examiner is invited to contact the undersigned to discuss the proposed change(s) to the same.

The Examiner also objects to the drawings under 37 CFR 1.83(a) as not showing every feature of the invention recited in the claims, with specific reference to a differential, a transfer transmission, a setting device, servo assistance including a piston-cylinder system, and a mechanical conversion device. In response, and after consideration, the Applicant elects to address the Examiner's objections to the drawings with respect to a differential, a transfer transmission, a setting device, and a servo assistance including a piston-cylinder system by amending or canceling certain of the claims to eliminate the references to these elements in the claims. Such amendments and cancellations thereby render the grounds for objection, under 37 CFR 1.83(a), moot as regards these elements.

In addition, the Applicant wishes to note that the mechanical conversion device is shown in Fig. 2, is referred to and described in paragraphs [012] and [034] of the specification. The Applicant, therefore, responds to the objection to the drawings under 37 CFR 1.83(a) as regards the mechanical conversion device by amending paragraphs [012] and [034] of the specification and Fig. 2 to more explicitly and clearly show and describe the element in question.

In summary, therefore, the Applicant believes that the above described amendments to the claims, the specification and the drawings are addressed and overcome all of the grounds for objection to the drawings, under 37 CFR 1.83(a), and respectfully requests that the Examiner reconsider and withdraw all objections to the drawings at this time.

Next considering the claims, claims 8-14 are presently pending in the Application and the Examiner rejects claim 13, under 35 U.S.C. § 112, for the reasons stated in the action and rejects claims 8-14, under 35 U.S.C. § 103, over Berger '381, as the English equivalent of WO 01/84019, in view of Stockton '200. The Applicant acknowledges and respectfully traverses forth of the raised rejections in view of the following remarks.

First consider the rejection of claim 13 under 25 U.S.C. § 112, it will be noted that claim 13 is canceled in response to the Examiner's objections to the drawings, thereby rendering the rejection of claim 13, under 35 U.S.C. § 112, moot.

As regards the rejection of claims 8-14 under 35 U.S.C. § 103 over Berger '381 in view of Stockton '200, it must first be noted that the Applicant is rewriting the subject matter of claims 8 and 14 as independent claim 15 to more explicitly and clearly recited the present invention, so that claim 15 now incorporates the subject matter, recitations and limitations of claims 8 and 14. It must also be noted that in addition to canceling claims 8 and 14 in favor of new claim 15, the Applicant also canceled dependent claims 11-13 to meeting the Examiner's objections to the drawings, thereby rendering the rejections of claims 11-14, under 35 U.S.C. § 103, moot.

It should also be noted that the Applicant amends claims 9 and 10 to now depend from new claim 15, such that those two dependent claims thereby incorporate all of the recitations and limitations of claim 15. The Applicant also amends claim 9 by changing the term "shifting sets" to be "coupling devices", thereby bringing the terminology of claim 9 into accordance with the specification, and amends claim 10 by eliminating the reference therein to "a differential or

transfer transmission" in response to the Examiner's objections to the drawings, as discussed above.

Therefore considering the present invention as recited in new independent claim 15, the present invention is directed to a selector transmission (1) for a motor vehicle in which two transmission shift positions located in a shifting gate (55) of a H or multi-H transmission device (50) can respectively be shifted. According to claim 15, the transmission includes a single transmission input shaft (5) bearing a plurality of fixed transmission input gears (6, 7, 8, 9, 10) arranged in a specific input gear sequence. That input gear sequence is, in order, a first transmission input gear (6) for driving a second transmission gear (G2) ratio and a transmission reverse gear (RG), a second transmission input gear (7) for driving a fourth transmission gear (G4) ratio and a sixth transmission gear (G6) ratio, a third transmission input gear (8) for driving a third transmission gear (G3) ratio, a fourth transmission input gear (9) for driving a first transmission gear (G1) ratio and a fifth transmission input gear (10) for driving a fifth transmission gear (G5) ratio.

Further according to claim 15, the transmission includes first and second countershafts and a reverse shaft bearing gears that engage with the input gears to provide the transmission gear ratio, with the countershaft gears being in specific sequences to be cooperative with the sequence of input gears.

More specifically, the first countershaft (15) is parallel with the transmission input shaft (5) and includes a first plurality of idler gears (11,12, 13, 14) rotatably mounted upon the first countershaft (15) in a second specific gear sequence. The second gear sequence is, in order, a first idler gear (11) engaged with the first transmission input gear (6) for the second transmission gear (G2) ratio, a second idler gear (12) engaged with the second transmission input gear (7) for the fourth transmission gear (G4) ratio, a third idler gear (13) engaged with the third transmission input gear (8) for the third transmission gear (G3) ratio and a fourth idler gear (14) engaged with the fourth transmission input gear (9) for the first transmission gear (G1)

ratio. The first countershaft further includes a first coupling device (29) for selectively coupling one of the first idler gear (11) and the second idler gear (12) with the first countershaft (15) and a second coupling device (30) for selectively coupling one of the third idler gear (13) and the fourth idler gear (14) with the first countershaft (15), thereby selecting among and actuating the gear ratios available on the first countershaft.

The reverse gear shaft (22), in turn, includes a first reverse gear (21) fixed on the reverse gear shaft (22) and engaged with the fourth transmission input gear (9) and a second reverse gear (23).

Finally, the second countershaft (16) includes a second plurality of idler gears (17, 18, 19) rotatably mounted on the second countershaft (16) in a third specific gear sequence. The third gear sequence is, in order, a fifth idler gear (17) engaged with the second reverse gear (23), a sixth idler gear (18) engaged with the second transmission input gear (7) for the sixth transmission gear (G6) ratio, and a seventh idler gear (19) engaged with the a fifth transmission input gear (10) for the fifth transmission gear (G5) ratio. The second countershaft further includes a third coupling device (31) for selectively coupling one of the fifth idler gear (17) and the sixth idler gear (18) with the second countershaft (15) and a fourth coupling device (32) for selectively coupling the seventh idler gear (19) with the second counter shaft (16).

Lastly, the transmission further includes a transmission output shaft (28) having a transmission output gear (27) engaged with a first output gear (24) fixed on the first countershaft (15) and with a second output gear (26) fixed on the second countershaft (16).

It will be noted from claim 15 that, as recited, the second transmission input gear (7) is engaged with both the second idler gear (12) on the first countershaft and the sixth idler gear (18) on the second countershaft. As a result, the second transmission input gear is thereby employed in generating both the fourth transmission gear (G4) ratio and the sixth

transmission gear(G6) ratio, thereby reducing the number of gear sets required for a six speed transmission by one and providing a more compact transmission.

It must also be noted that, as recited in claim 15, the sequence of gear pairs on the transmission input shaft and thus on the first and second countershafts, and the corresponding arrangement of coupling devices to engage the countershaft gears with the countershafts, is non-consecutive. The gear pair arrangement of the present invention thereby does not correspond directly to the consecutive arrangement of gear ratios in a convention H shifting gate, so that the gear arrangement of the present transmission is not readily usable with a convention H shifting gate. That is, the sequence of gear ratio pairs and associated coupling devices in the present transmission is arranged in the order (G2, G4), (G3, G1), (G5), (RG, G6), so that the gear ratios are not in consecutive sequence. The sequence of gear ratios in a conventional H gate shifting device, however, is consecutively sequential, that is, the first and second gear ratios are together in the first H slot, the third and fourth gear ratios are together in the second H slot, and so on. As a result, the movements and positions of the shift lever in a conventional shifting device do not translate directly to corresponding coupling devices and gear pairs of the transmission of the present invention. For that reason, the transmission of the present invention, as recited in claim 15, includes a mechanical conversion device which converts a shift lever movement in a shifting gate of an H or multi-H shifting gate from one gear position to a next gear position into actuation movements for the coupling devices.

Next considering the prior art cited by the Examiner, as shown in Fig. 5 and described in the corresponding text Berger '381 describes a transmission having two input clutches, each being coupled to connect to a separate input shaft. As a result, and as described by Berger '381, the Berger '381 transmission has two separate input shafts driving two mutually separate sub-transmissions. Each sub-transmission includes a countershaft with gears engaged with corresponding gears on a corresponding one of the two inputs shafts wherein the

gear ratio is selected by coupling selected ones of the countershaft gears to their respective countershafts by means of shifting sleeves, couplable to the countershaft.

The primary aspect of interest in the Berger '381 transmission is the arrangement of selection elements and actuating elements for selecting and engaging the shifting forks to select and engage the desired gear ratios. According to Berger '381, the design of the transmission allows sufficient space between the elements of the shifting mechanism to allow a selection element to select a gear ratio, that is, a shifting fork which is to be engaged with the actuating element subsequently being moved to engage the shifting fork and the associated gear ratio. As described by Berger '381, this arrangement allows the selection of a next gear ratio while a current gear ratio is still engaged, with the subsequent engagement of the next gear ratio and disengagement of the preceding gear ratio to take place in less time than in conventional transmissions.

It must be noted, however, that as described at, for example, columns 8 and 9 of Berger '381, this primary aspect of the Berger '381 transmission requires that the gear ratios and their associated shifting forks, actuating elements and selection elements be arranged according to succeeding gear ratios. This restriction, however, allows Berger '381 to use a shifting mechanism having a conventional H shift pattern with requiring a mechanical converter to translated shift lever movements into coupling element selections.

It is, therefore, apparent that there are a number of very basic distinctions between the present invention and the teachings of Berger '381. For example, the Berger '381 transmission employs two separate input shafts, which are selectable by two corresponding clutches, and two sub-transmissions, each of which is driven by one of the input shafts.

In contrast, the transmission of the present invention has only a single input shaft driving a single transmission, that is, a transmission that is not organized as multiple sub-transmissions.

It is also apparent that, as a consequence of the above distinction, not only is the structure and operation of the Berger '381 transmission fundamentally different from that of the present invention, but the Berger '381 transmission does not and cannot provide a gear pair organization, as recited in claim 15.

In addition, Berger '381 teaches that it is necessary, or at least very advantageous and preferable, that the gear ratios in the transmission, that is, the gears and the selection and actuation mechanism, be arranged according to successive gear ratios in order to obtain the benefit of the invention.

In fundamental contrast from Berger '381, in the transmission of the present invention, and as recited in claim 15, the gear ratios and their selection and actuation mechanisms are organized in an non-consecutive sequence so that the transmission of the present invention includes a mechanical conversion device which converts a shift lever movement in a shifting gate of an H or multi-H shifting gate from one gear position to a next gear position into actuation movements for the coupling devices of the present invention. In this respect, therefore, Berger '831 not only does not teach a fundamental aspect of the present invention but actually teaches away from a fundamental aspect of the present invention.

It is therefore the belief and position of the Applicant that, for the above reasons, the transmission of the present invention, as recited in new independent claim 15, is fully and patentably distinguished over and from the teachings of Berger '381 under the requirements and provisions of 35 U.S.C. § 103. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claim 15 over Berger '381.

Next considering the teachings of Stockton '200, it is noted that the Examiner cites Stockton '200 not for the structure and operation of the Stockton '200 transmission, but as teaching certain individual transmission components that are recited in various of original claims 8-14 but that are not taught in Berger '841, such as synchronizer rings and clutches, fixed gears mounted on a shaft, setting devices with servo assist. It must first be noted that the

above discussed amendments to claims reciting many of these components render this issue moot because of cancellation of the claims or amendments to the claims. It must also be noted that the Applicant is not claiming these components in themselves, but is instead claiming such components only as elements in an inventive transmission wherein the invention is directed to the structure and operation of the transmission, such as the organization of gears, rather than to such common known and used components.

With regard to any wider applicability of the teachings of Stockton '200 to the present invention, it must be noted that the structure and arrangement of the gearing and shafts of the Stockton '200 transmission is fundamentally different from that of the present invention. For example, the Stockton '200 transmission is a four speed transmission with overdrive gearing while the transmission of the present invention is a six speed transmission without overdrive gearing, so that the Stockton '200 transmission inherently does not and cannot have the gearing arrangement of the present invention.

In addition, the fundamental structure of the gearing in Stockton '200 requires that all input shaft gears engage two countershaft gears, that is, one on each countershaft, which severely limits both the number of possible gear ratios to only even numbers of gear ratios and severely limits the possible ranges of gear ratios. In basic contrast from Stockton '200, the transmission of the present invention allows the number of input shaft gears that are shared between two countershaft gears to be selected according to the desired number of gear ratios and the ranges of the gear ratios. For example, in the claimed embodiment of a transmission of the present invention only the second transmission input gear (7) is engaged with both the second idler gear (12) on the first countershaft and the sixth idler gear (18) on the second countershaft, which would be impossible with Stockton '200. Stockton '200 thereby effectively teaches away from the present invention by requiring this basic restriction on the relationships between the input shaft gears and the countershaft gears.

It is, therefore, the belief and position of the Applicant that, for the above reasons, the transmission of the present invention as recited in claim 15 is fully and patentably distinguished over and from the teachings of Stockton '200 under the requirements and provisions of 35 U.S.C. § 103. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claim 15 over Stockton '200.

Next considering the combination of Berger '841 in view of Stockton '200, it is apparent that neither Berger '841 nor Stockton '200 teaches or suggests essential aspects of the present invention as recited in claim 15, such as the sharing of at least one gear but less than all the gears among two gear ratios and across two countershafts, the arrangement of the gear ratio pairs in a non-consecutive order, or the use of a mechanical translation device to convert the sequential order of the gear ratios in a conventional H shifter into the non-consecutive gear order in the transmission.

As such, it is the Applicant's belief and position that there is no permissible combination of Berger '841 in view of Stockton '200 that could or does teach or even suggest the present invention as recited in claim 15 to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. § 103.

In addition, while it would arguably be possible to add certain components from Stockton '200, such as synchronizer rings and clutches, fixed gears mounted on a shaft, setting devices with servo assist, these are merely common components used in many transmissions and, in themselves, add nothing to the fundamental teachings of Berger '841 as discussed above. As a result, it is the Applicant's belief and position that there is no permissible combination of Berger '841 in view of Stockton '200 that could or does teach or suggest the presently claimed invention, as recited in claim 15, to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. § 103 since Berger '841 does not teach or suggest fundamental aspects of the present invention as recited in claim 15.

With regard to a wider application of the teachings of Stockton '200 in combination with Berger '841, the basic structures and operations of the Berger '841 and Stockton '200 transmissions are sufficiently different from one another that it is the Applicant's position that features of the overall structure and operation of the Stockton '200 transmission could not be validly combined with the overall structure and operation of the Berger '841 transmission. For example, the Stockton '200 transmission requires a single input shaft in order for the gears of the input shaft to be able to drive gears on both of the countershafts. Since the Berger '841 transmission requires two separate input shafts, the Berger '841 transmission directly conflicts with the requirements of the Stockton '200 transmission in this fundamental aspect.

In further distinction between Stockton '200 And Berger '841, the Stockton '200 transmission requires that all input shaft gears engage two countershaft gears and that each input shaft gear participate in two different transmission gear ratios. These requirements, however, directly conflict with the design of the Berger '841 transmission, and would be impossible with the Berger '841 gear organization, so that it would, in fact, be impossible to form any combination of features of the Stockton '200 and Berger '841 gear arrangements. As a result, the Stockton '200 and Berger '841 transmission could not be combined and the combination of Berger '841 in view of Stockton '200 is not a valid combination under the requirements and provisions of 35 U.S.C. § 103.

It is therefore the belief and position of the Applicant that, for the above reasons, the transmission of the present invention, as recited in claim 15, is fully and patentably distinguished over and from the teachings of Berger '841 in view of Stockton '200 under the requirements and provisions of 35 U.S.C. § 103. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claim 15 over Berger '841 in view of Stockton '200, and allow claim 15.

Lastly, and as discussed above, remaining claims 9 and 10 as amended herein above are dependent from claim 15 and thereby incorporate all recitations and limitations of claim 15.

It is therefore the Applicant's belief that claims 9 and 10 are fully and patentably distinguished over and from the teachings of Berger '841 in view of Stockton '200 under the requirements and provisions of 35 U.S.C. § 103. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 9 and 10 over Berger '841 in view of Stockton '200, and allow claims 9 and 10 as amended herein above.

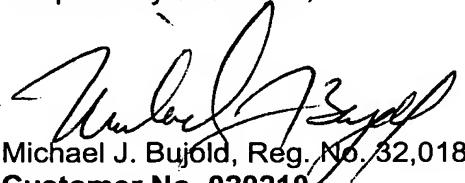
In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Berger '841 and/or Stockton '200 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

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In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



Michael J. Bujold, Reg. No. 32,018

Customer No. 020210

Davis & Bujold, P.L.L.C.

Fourth Floor

500 North Commercial Street

Manchester NH 03101-1151

Telephone 603-624-9220

Facsimile 603-624-9229

E-mail: patent@davisandbujold.com

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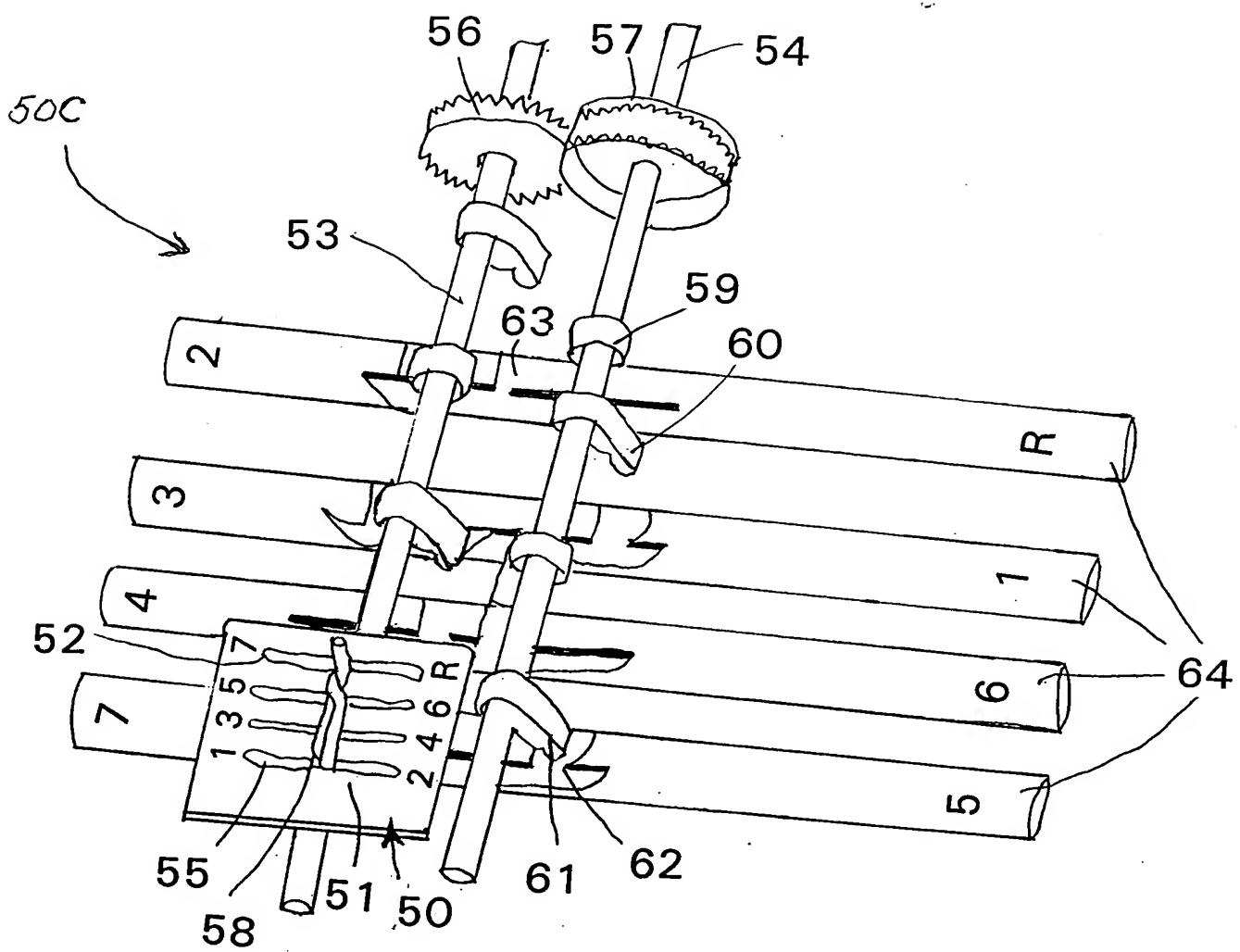


Fig. 2
Prior Art